

Endoscopic versus External Dacryocystorhinostomy: A Comparative Clinical Study

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Abstract

Background: Chronic dacryocystitis is characterised by essential symptom of epiphora which have social impaction.

Methods: This is prospective study involving patients with chronic dacryocystitis. 100 patients were included and all of them were subjected to endoscopic dacryocystorhinostomy.

Results: The data shows the result of endoscopic DCR were good than the external -DCR. The value of chi square(x²) at p=.05 at 1df should be 3.84 significant difference in success rate. It was found that chi square (x²) at p=.05 at 1df was 3.073. The overall success rate in endoscopic-DCR in the present study was 95% whereas it was 86.6% in external-DCR.

Conclusion: Endoscopic-DCR is better than external-DCR as it has much higher success rate (95%) than external -DCR (86.6%). It avoid external scar so cosmetically better acceptable. It also preserve the lacrimal pump mechanism.

Keyword: Dacryocystitis, Nasolacrimal duct, Epiphora, Lacrimal sac, Dacryocystorhinostomy.

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Introduction

Chronic dacryocystitis is characterised by essential symptom Epiphora and aggravated by condition such as exposure to wind. There may be swelling at the site of lacrimal sac and neighbouring part of conjunctiva may be inflamed. Chronic dacryocystitis commonly attributed to the effect of stricture of the Nasolacrimal duct arising from chronic inflammation.

External dacryocystorhinostomy had been the mainstay of treatment for chronic stenosis of Nasolacrimal duct. Almost a century ago in 1904, a French Ophthalmologist Adeo Toti, introduced an operation which he called "Dacryocystorhinostomy" for the treatment of obstructive epiphora. He proposed that through external approach lacrimal sac should be opened and its portion near to the canaliculi should be preserved and absorbed into the nose by creating a window in the lateral wall of nose.

First intranasal Dacryocystorhinostomy was described by "Caldwell" in 1893 and modified by "West and Halle" in 1914 using microscope for visualization. Intranasal approach to Dacryocystorhinostomy, in which a portion of

inferior turbinate was removed and the nasolacrimal duct was followed to the lacrimal sac. However, the endonasal technique was not successful because of difficulty in visualizing the endonasal anatomy. In last two decades, the advent of rigid nasal endoscope for various nasal and paranasal surgery has provided otolaryngologist with unprecedented direct view of nasal cavity, even allowing the visualisation at angles from direct visual axis which allow more controlled access and manipulation of Lacrimal sac.

The procedure of Endoscopic Dacryocystorhinostomy is easy, hence, it widens its scope. It is cosmetically more acceptable because it avoids scar. Simultaneously nasal and paranasal sinus pathologies can be treated in the same sitting which had been an important cause for failure of external Dacryocystorhinostomy. It is more physiological because it preserves the lacrimal pump mechanism.

The main disadvantage and limitation of endoscopic Dacryocystorhinostomy is to have sophisticated equipment (nasal endoscope) and sometimes intraoperative nasal bleeding may make this technique somewhat difficult. Technique

should be attempted only by those with extensive experience with endoscopic nasal surgery.

Post-operative care is mainly responsible for excellent final results. Meticulous clearing of debris and adhesion at the operated site and repeated irrigation of canaliculi in non-cannulated cases is mandatory for good results.

Materials and Methods

The study was conducted at ENT department of SMS medical college Jaipur from April 04 to April 06. All the patients were recruited from OPD. The results of External Dacryocystorhinostomy as per data from ophthalmology dissertation showed a success rate of 86.6% in total no. of 45 cases in the year of 2005. The patient who fulfils the following criteria were included in the study.

Inclusion Criteria

1. Epiphora.
2. Regurgitation revealing nasolacrimal duct blockage.
3. Agreeing for 6-8 months follow up.
4. If patient has deviated nasal septum which is a relative contraindication of External Dacryocystorhinostomy is included in the study where Endoscopic Dacryocystorhinostomy and septoplasty done simultaneously.

Exclusion Criteria

1. Canalicular or common canalicular blockage ascertained by probing.
2. Noticeable lid laxity.
3. Post traumatic lids and bony deformities (acquired and congenital).
4. Not agreeable for 6-8 months follow up.

Patients were then assessed for nasolacrimal duct region by:

1. H/O watering, discharge its duration, constant or intermittent.
2. Eye lids with special reference to position and condition of punctum.
3. Past history of acute attacks of Dacryocystitis, Sac surgery, probing.
4. Any swelling over the sac area its duration accompanied by pain.
5. Fistulas opening, its nature of discharge.
6. Regurgitation by pressure over sac area and its nature.
7. Syringing and probing to assess exact site of blockage.
8. Nasal endoscopy to see the high deviation, double middle turbinate, synechiae, malignancy and foreign body.

Observation and results

All patients diagnosed to have nasolacrimal duct blockage in the SMS medical and hospital, Jaipur who fulfilled the eligibility criteria, were enrolled for the study.

Table 1: Duration of disease

Duration of disease	Total number
≤1yr	23
1-3 yrs	50
>3yrs	17

- Majority (50) of the pts were operated in second year of their illness.
- Approximately 23 were operated in their one year of illness and 17 after 4 years of illness.

Table 2: Population wise distribution

Population	Rural	Urban	Total
No of pts	72	28	100

- The majority of cases (72) were seen in the rural population in whom cleanliness is not of much importance.
- The majority of cases were among the rural females.

Table 3: Comparison of different technique:

Technique	Endoscopic DCR	External DCR
No. of cases	100	45
Failure	5	6
Success	95	39
percentage	95	86.6

- These data show the result of the endoscopic DCR are good than the external DCR.
- The value of chi square (χ^2) at $P=0.05$ at 1 df should be 3.84 for significant difference in success rate.
- It was found that chi square (χ^2) 3.073 at 1df for the comparison in the success rate of Endoscopic DCR to External DCR therefore the present observation is not significant.

Discussion

Obstruction of nasolacrimal duct results in the disturbed out-flow of the tears commonly known as epiphora. Epiphora remains one of the most bothersome complications of lacrimal system obstruction and has social implication also.

The aim of doing endoscopy DCR operation is to leave the patient with a patent rhinostome in order to create low pressure bypass system and hence relieve his or her epiphora.

The overall primary success rate was 91% in endoscopic dacryocystorhinostomy. After revision surgery overall success rate was 95% in the present study.

The results of Endoscopic-DCR are much better than external-DCR with its antecedent advantages.

- It can be done in case of pyoceles and atrophic rhinitis with equally good results. Both these conditions are relative contraindications to External-DCR
- It is a day care surgery hence it can be done in elderly patients who are medically unfit for general anaesthesia. Which is relative contraindication to External-DCR.
- It avoids external scar and cosmetically better acceptable.
- Simultaneous nasal and paranasal surgery can be treated in the same sitting which are the main cause of failure of External-DCR
- The results of External-DCR as per data from department of ophthalmology dissertation showed a success rate of 86.6% in total no. of 45 cases operated in the year 2005.
- The overall success rate of Endoscopic-DCR in the present study was 95%
- Thus, the Endoscopic-DCR is better than External DCR as it avoids external scar. The results were slightly better in Endoscopic-DCR (95%) than external -DCR (86.6%).

Conclusion

In the present study total no. of cases operated by Endoscopic-DCR was 100. Most of the cases were in the age group of 20-40 year of age (61%). There were 5 failures in this study. Common mode of presentation was chronic dacryocystitis in 95%, other was mucocele/pyocele in 5%. In cases of pyocele/mucocele Endoscopic-DCR found easier than simple dacryocystitis because of dilated sac causing thinning of bone of lacrimal fossae, making exposure of sac easier. Incision and excision of mucosa of sac were also found easier in these cases.

In the present study 5 cases of Endoscopic-DCR had undergone simultaneous septoplasty. The rate of synchiae formation was higher (60%) which

leads to partial blockage. After releasing of synchiae patient became symptom free.

The average time required was 45-60 minutes in plain DCR. Among the complications we found synchiae formation (7 case) between middle turbinate and sac area, granulation formation (8 case) around surgically made rhinostome.

We also found crust formation in 15 cases which leads to partial blockage which was relieved by crust removal.

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